FUTURE OF DETACHMENT 1 AT SAN ANTONIO AIR LOGISTICS CENTER

GRADUATE RESEARCH PAPER

James L. Hannon, Major, USAF

AFIT/GMO/LAS/96N-1

DEPARTMENT OF THE AIR FORCE
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Master of Air Mobility

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James L. Hannon.

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Abstract

As a result of the recent Defense Base Realignment and Closure Commission (BRAC) recommendation to close the San Antonio Air Logistics Center (SA-ALC), and subsequent Presidential decision to privatize the C-5 depot maintenance operation there, the question of what to do with Air Mobility Command's (AMC) largest aircraft maintenance detachment, stationed at SA-ALC, remains unanswered.

This is not an easy decision. On the one hand, the work accomplished by the Detachment has saved AMC over $25 million annually and resulted in AMC C-5 aircraft being returned to Travis and Dover Air Force bases following Programmed Depot Maintenance in better condition than ever before in history. On the other hand, having military personnel working in-and-around an aircraft which is the responsibility of a civilian contractor while using leased facilities and equipment, raises concerns on the contracting side of litigation and liability.

The privatization team at SA-ALC has voiced its concerns about the contracting difficulties however, the primary customer, the AMC/LG, has indicated that he wants the same quality of aircraft delivered to the home stations as is now being delivered with little or no interruption in service or increase in cost.

This paper summarizes the benefits of the unit's accomplishments to date, identifies the "real" costs associated with those benefits, and addresses some of the key contracting concerns such as "constructive change" and liability. The paper also proposes two alternatives--leave the unit in place or close the unit--and a recommendation to help answer the question; what should AMC do with Detachment 1 at the San Antonio Air Logistics Center?

FUTURE OF DETACHMENT 1 AT SAN ANTONIO AIR LOGISTICS CENTER

I. Introduction

Figure 1. Detachment 1, Unit Emblem

Background

To increase the number of mission-capable C-5 aircraft available at the wing level, the AMC Deputy Chief of Staff for Logistics and the SA-ALC C-5 System Program Director developed a plan in 1993 to accomplish field-level maintenance on C-5s while in Programmed Depot Maintenance (PDM). This plan went into effect on 15 November 1993 with the activation of Detachment 1, 60th Logistics Group, collocated with the C-5 PDM at SA-ALC. The 74-man unit was created using manpower authorizations sourced from positions freed by the enroute drawdown, as well as tools and equipment redistributed from unit closures at Norton and McClellan AFBs (Coley, 1996: 3).

The mission of the detachment is to accomplish as much field level maintenance as possible on AMC C-5 aircraft undergoing PDM. This includes, but is not limited to:

1) Accomplishing Isochronal, One Time, and Special Inspections

2) Correcting non-work specification aircraft discrepancies found during PDM that were outside the PDM contract to repair

3) Correcting previously annotated aircraft discrepancies

4) Completing and kitproofing Time Compliance Technical Orders

5) Inspecting and managing AMC TF-39 engine assets at PDM

6) Updating the GO81 aircraft database

Prior to the unit's activation the majority of this work was accomplished upon return to the homestations--Travis and Dover AFBs. Maintenance personnel at these bases would accomplish the above list of work, as well as reinstall the "dash 21" equipment (first aid kits, life rafts, seats, cargo rails, etc.), immediately following the return of the aircraft from PDM. On average this work required an additional 28 days of downtime (Coley, 1996: 4).

Less than two years after activating Detachment 1, the Defense Base Realignment and Closure Commission's 1995 Report to the President recommended that the Department of the Air Force close six major bases and realign six major bases. The six major bases recommended for closure were: McClellan Air Force Base, Ontario International Airport Air Guard Station, Chicago O'Hare International Airport Air Reserve Station, Roslyn Air Guard Station, Bergstrom Air Reserve Base, and Reese Air Force Base. The six major base realignment recommendations were at Onizuda Air Station, Eglin Air Force Base, Malmstrom Air Force Base, Grand Forks Air Force Base, Hill Air Force Base, and Kelly Air Force Base (essentially closing the SA-ALC) (BRAC's Report, 1995:6).

On October 17, 1995, President Clinton gave a speech to service personnel and employees at Kelly AFB. In this speech he indicated that after his insistence and refusal to go along with the BRAC's recommendation, the Air Force developed the "Privatization In Place Plan" that will keep thousands of jobs at SA-ALC. He went on to say "we're not shutting this base down, we're transforming it. We're maintaining jobs here because it is good for San Antonio, but it's also good for the Air Force. With our plan to move jobs here to the private sector, we'll be helping national security and helping the people of San Antonio." "It means that for five more years, Kelly will keep the jobs that would be here if closure had not been recommended" (The White House, 1995: 3).

On August 16, 1996, the Commander of SA-ALC, Major General Childress, told a gathering of C-5 Aircraft directorate employees that the entire C-5 depot maintenance activity will be the first privatized. The workload currently employs approximately 1200 people in repair and support jobs with an estimated dollar value of $155 million annually. The aircraft repair facility at Kelly includes the world's largest freestanding hangar, capable of housing six C-5s simultaneously. There is currently no other DoD aircraft repair facility capable of completely housing C-5 aircraft.

The general also noted one important change in the privatization effort. Other air logistics centers will be allowed to join private contractors in the bidding process. "However," he went on to say, "if any of the three remaining air logistics centers were to bid, it would have to be with the understanding that the workload would have to be accomplished at that center and the cost of building facilities capable of handling the massive C-5 would have to be included." The general also indicated that "based on a July 97 contract award, we would set a reduction in force,

or RIF effective date of March 98. That assumes the transition to the contractor takes place over a nine-month period" (Day, 1996: 1).

As a result of this action, the Government is contemplating a requirements contract for a 5 year period of performance, to be awarded in accordance with source selection procedures, for the C-5 PDM. This acquisition is open to all interested parties, and will be accomplished as a public/private competition. Work will include accomplishment of analytical condition inspection (ACI), major structures and systems inspections, system tear down, inspection, modification, and/or overhaul of the engine pylons, the horizontal stabilizer, and leading edge slats. The contractor will accomplish aircraft de-paint and paint and operate backshops in conjunction with the PDM. Facilities and equipment are available for lease through the greater Kelly Development Corporation. Small business involvement in contracted activity is a priority and will be evaluated in the award process. The draft Request For Proposal (RFP) release date is expected by October 1996. Approximate issue date of the formal RFP is January 1997 with contract award planned for July. The approximate issue/response date will be 31 October 1996. According to Major General Childress, "this basically accelerates the timetable for the workload transition, and provides for a more attractive solicitation to potential bidders" (Day, 1996: 1).

On September 10, 1996, when asked for a decision on what to do about Detachment 1, the AMC/LG indicated that he wanted the same quality of aircraft delivered to the home stations as is now being delivered with little or no interruption in service or increase in cost (Kirchoff, Telecon, 11 Sep 96).

As a result of the BRAC's decision to close SA-ALC, subsequent Presidential decision to "privatize in place," SA-ALC Commander's decision to privatize the C-5 depot maintenance

activity first, and AMC/LG's desires for no quality or cost changes, the issue of what to do with Detachment 1 remains open.

Purpose of This Research Paper. The purpose of this research paper is to identify unit benefits and costs as well as propose alternatives for the future of Detachment 1 given the significant environmental changes brought on by privatization. These changes will soon affect how, where, and even if the unit will be operating in the future.

Following the introduction, chapter two highlights the benefits derived from the detachment's efforts--completion of inspections, discrepancy correction, reduced turn-around time, increased in-commission rates, reduced man-hour per flying hour, and unofficial oversight. Chapter three looks at the other side of this coin discussing the costs associated with maintaining Detachment 1 at SA-ALC. This section specifically identifies the cost of unit manpower, facilities, utilities, tools and equipment, TDY's, vehicle maintenance, and other miscellaneous expenses necessary for the unit to accomplish its mission. Chapter four looks at the contracting issues surrounding the unit working on a contractor owned aircraft in a non-DoD facility, on a non-interference basis--specifically addressing constructive change and liability issues. Chapter five presents some realistic alternatives to possibly solve this issue--identifying the strengths and weakness of each. Chapter six concludes with a summary and recommendation.

II. Benefit Analysis

Many people are aware of the benefits derived from Detachment 1's efforts. Among them is General Fogelman who initially approved the plan for the unit's activation in 1993 and, approximately one year later, made a personal visit to the unit praising the unit's outstanding accomplishments. These accomplishments were once again recognized when the unit was awarded the Maintenance Effectiveness Award for outstanding aircraft maintenance from 15th Air Force and, most notably, the Maintenance Effectiveness Award from AMC in 1995. The recognition comes as a direct result of the benefits the unit provides.

This chapter will identify the benefits associated with the Detachment's efforts. Benefits derived from inspection completion, discrepancy correction, reduced turn-around time, higher in-commission rates, reduced man-hour per flying hour ratio, PDM oversight, and parts installation.

Inspection Completion

Prior to the unit's activation an Isochronal (ISO) inspection was completed immediately after the aircraft returned to home station following PDM. This inspection is the most extensive inspection completed at the field level and was accomplished for two reasons: the first was simply that the inspections were due--the cycle dictated completion. The second, unwritten reason, was that the ISO inspection was used as an "acceptance" inspection after PDM. This ISO inspection often took another 15 days of aircraft downtime--pulling many of the same panels and inspecting many of the same areas accomplished as part of the PDM inspection.

Detachment personnel now accomplish an Isochronal inspection on every AMC C-5 aircraft and TF-39 engine at PDM. The unit also accomplishes One Time Inspections (OTI) and Special Inspections (SI) that are due. In addition, because the aircraft is stripped, and the engines, pylons, flight controls and panels are removed, unit personnel have a unique opportunity to inspect normally hard to get at, and often times rarely inspected, areas. This has resulted in the discovery of some serious discrepancies which were corrected before catastrophic failure had a chance to occur. This subject of discrepancy discovery and correction is discussed in the next section.

Discrepancy Correction

On average, 674 discrepancies are corrected by detachment personnel on every AMC C-5 aircraft at PDM. These discrepancies include approximately 55 the aircraft arrived with, 315 found from unit accomplished inspections (ISO, OTI, & SI), as well as over 300 discovered by depot personnel during the PDM inspections that are outside the depot's contract to repair--considered "over-and-above" work (Coley, 1996: 5).

This last category, over-and-above, makes up nearly 50 percent of the discrepancy total repaired by the unit. Without unit involvement, these discrepancies would either be accomplished by depot personnel at $172 per hour or be sent back with the aircraft for completion at the home-stations. The unit estimates that it saves AMC approximately $80,000 in would-be depot "over-and-above" costs per aircraft by accomplishing the work itself. This results in an estimated savings to AMC of $960,000 annually (Hodges, 1996: telecon).

In addition, correcting as many discrepancies as possible during the period the aircraft is at PDM has resulted in AMC C-5 aircraft being returned to Travis and Dover AFB in better condition than ever before in history--often with "ZERO" discrepancies in the 781A forms and less than 20 total discrepancies in the 781K. Prior to the unit's activation, AMC aircraft were returned to home station following PDM with an average of 343 discrepancies per aircraft (Coley, 1996: 4).

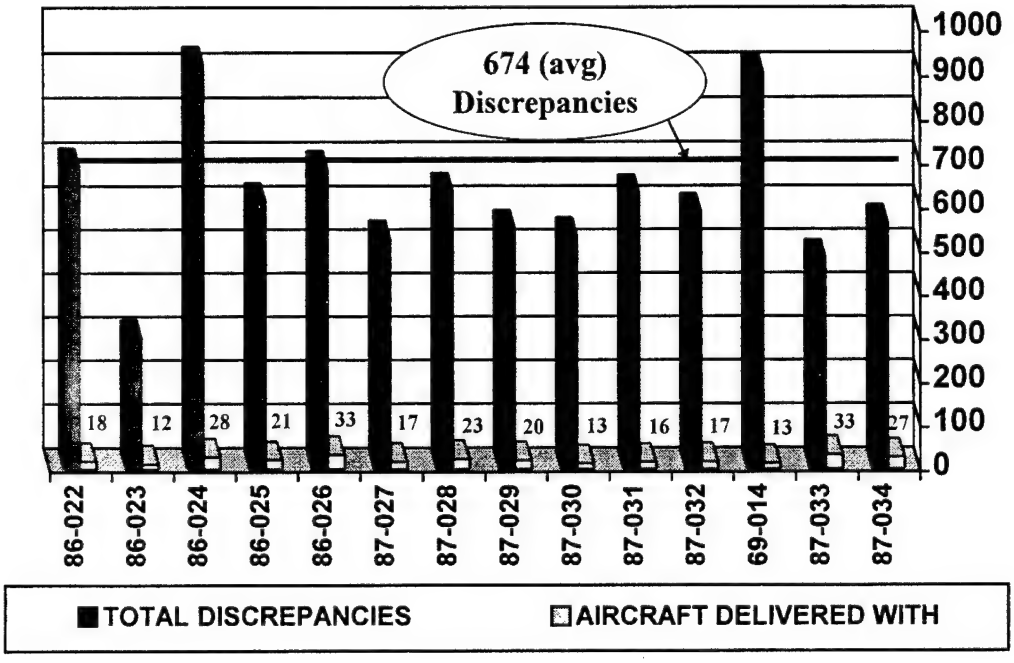

Figure 2. Aircraft Production FY96

Turn-Around Time

Completing the inspections and discrepancies significantly reduces the amount of time required to get the aircraft ready for a mission once it is returned from PDM. Prior to the Detachment's involvement this "turn-around" time, as it is often referred to, would take an average of 28 days of additional downtime. It included the completion of the ISO inspection,

One Time Inspections, Special Inspections, and PDM non-work specification discrepancies the aircraft returned with as well as the installation of the dash-21 equipment.

That situation has changed and now the home-station personnel need only reinstall the dash-21 equipment and repair any discrepancies encountered on the return leg from SA-ALC. The average time from arrival to mission capable (MC) status now averages only 2 days and has even occurred as quickly as 12 hours--marked decrease from the previous 28 day average (Coley, PP; 1996: 1).

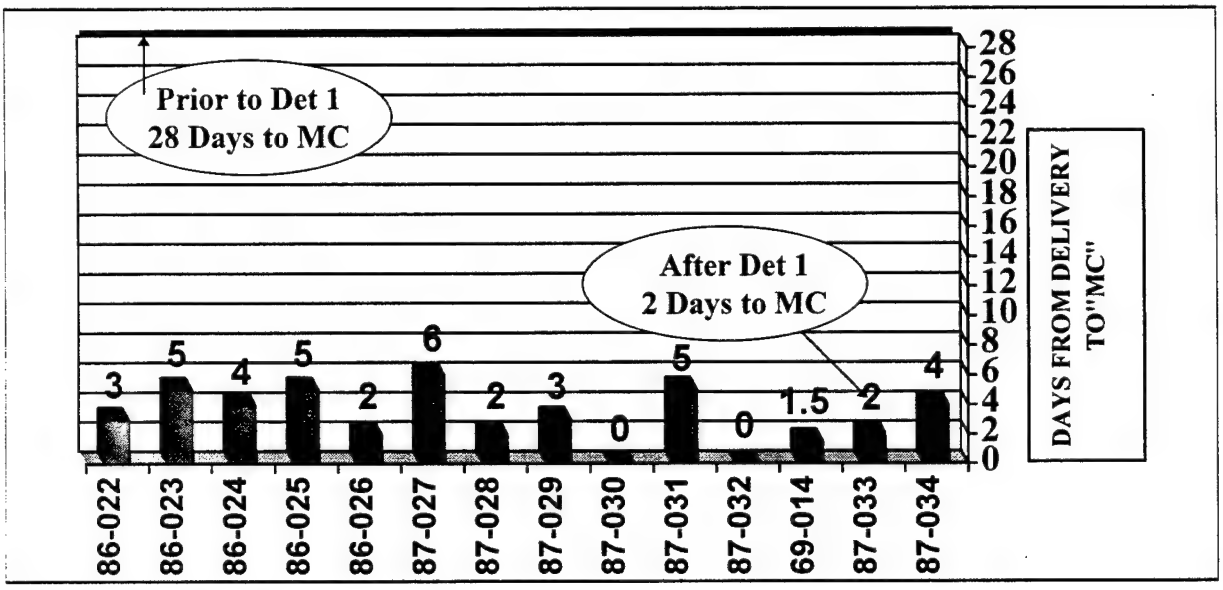

Figure 3. Turn-Around Time

Since the aircraft returned by the Detachment are a revenue generating airframe for an average of 26 more days per PDM return, a dollar cost savings can be determined using this difference in average turn-around time multiplied by the average C-5 utilization rate and cost per flying hour. The following table breaks out this information in detail:

Table 1
Additional Revenue Generated

DIFFERENCE IN AVERAGE TURN-AROUND TIME	C-5 COST PER FLYING HOUR (DoD)	C-5 UTE RATE *(hrs/day)*	SAVINGS PER C-5 AFTER PDM	NUMBER OF C-5s DELIVERED ANNUALLY	TOTAL SAVINGS ANNUALLY
26 days	$11,341	2.572	$758,395	15	*$11,375,930*

The UTE rate formula divides the annual C-5 flying hour program (84262 for FY96) by 260 work days per year. The result is 324 hours per day for the fleet. This figure is divided by the number of aircraft in the fleet (126) to determine the utilization rate (2.572). The "fleet" includes Air National Guard, Air Force Reserve, Air Education and Training Command, and all AMC C-5 aircraft.

As significant as it may seem, even this annual cost savings figure of $11.4 million is conservative given the fact that the cost per flying hour for this example was multiplied by the C-5 fleet utilization (UTE) rate. This UTE rate is a conservative figure when focusing specifically on AMC C-5 aircraft just delivered from PDM. The reason for this is that the AMC C-5s delivered from PDM are in much better condition than the majority of the rest of the "fleet"--they already have all the scheduled maintenance and most, if not all, of the discrepancies completed. This means that the 26 days immediately following delivery are much more productive than the average fleet utilization rate of 2.572 would indicate--probably closer to 4.0 hours per day.

In addition, the DoD aircraft reimbursement rate per flying hour ($11,341) used in Table 3 is the lowest rate of four rates that can be charged per flying hour. The other three rates that

can be charged are; Government Non-DoD $15,974, Non-Government $17,149, and Foreign Military Sales $16,510 (AFI 65-503, 1996: 2).

Using a UTE rate of 4.0 and an average of the four flying hour rates that can be charged ($15,244), results in a more realistic average annual savings of nearly $24 million annually. The following table displays the additional revenue generated using these "real world" numbers.

Table 2
Additional Revenue Generated *(Real World)*

DIFFERENCE IN AVERAGE TURN-AROUND TIME	C-5 COST PER FLYING HOUR (Avg)	C-5 UTE RATE *(hrs/day) (Example)*	SAVINGS PER C-5 AFTER PDM	NUMBER OF C-5s DELIVERED ANNUALLY	TOTAL SAVINGS ANNUALLY
26 days	$15,244	4.0	$1,585,324	15	*$23,779,860*

Parts Installation

The unit installs an average of $174,000 of parts on every aircraft. This includes both the Depot Level Repairables (DLR) as well as the lower cost "XB" and "XF" items. In addition, due to the unit having access to depot backshop support, the Detachment is often able to remove an item, repair or coordinate the repair of an item and then reinstall the repaired item. This whole effort not only saves the home-stations the man-hours and downtime required to replace these items but also the money.

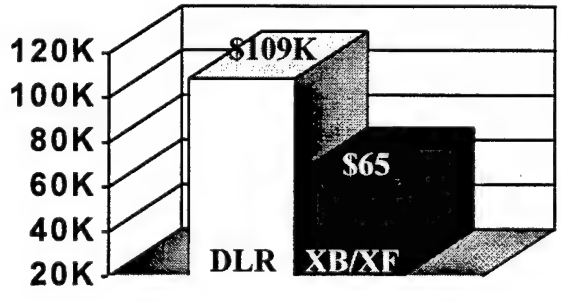

Figure 4. Parts Expenditures (Avg per Acft)

In-Commission Rates

As a direct result of the unit's mission, C-5 aircraft in-commission rates for these aircraft have increased by over 12 percent. Table 3 further breaks out the Possessed hours, In-commission hours and rates, as well as the individual Fully Mission Capable (FMC), Partially Mission Capable Maintenance (PMCM), Partially Mission Capable Supply (PMCS), Partially Mission Capable Both (PMCB), hours and rates for Travis, Dover, and Combined:

Table 3
C-5 In-Commission Rates

Detachment 1 Mission Complied With						
	Dover		**Travis**		**Combined**	
	Hours	**Rate**	**Hours**	**Rate**	**Hours**	**Rate**
Possessed	20,996		15,153		36,149	
In-Commsn	14,465	69%	10,696	71%	25,161	**70%**
FMC	3,968	19%	10,018	66%	13,986	39%
PMCM	2,148	10%	470	3%	2,618	7%
PMCS	5,427	26%	51	1%	5,478	15%
PMCB	2,923	14%	158	1%	3,080	9%
Detachment 1 Mission NOT Complied With						
	Dover		**Travis**		**Combined**	
	Hours	**Rate**	**Hours**	**Rate**	**Hours**	**Rate**
Possessed	20,690		28,029		48,719	
In-Commsn	12,956	63%	15,331	55%	28,287	**58%**
FMC	3,794	18%	13,601	49%	17,395	36%
PMCM	1,327	6%	989	4%	2,316	5%
PMCS	5,352	26%	681	2%	6,034	12%
PMCB	2,483	12%	60	1%	2,543	5%

The data for the above table were obtained from the GO81 Management Information System using a Variable Information Retrieval Program (VIRP) accessing the M3595S15 database. Data were extracted for a 6 month period following return from PDM for 10 C-5B-model aircraft (5 Dover, 5 Travis) that the Detachment had accomplished their mission on, as well as 10 C-5B model aircraft that had not experienced any assistance from Detachment 1. The in-commission rates were then determined for each aircraft by dividing the "In-commission" hours by the "Possessed hours."

Man-Hour vs Flying Hour

The man-hour per flying hour ratio is another way to measure benefits. Research using GO81 determined that aircraft worked by the Detachment required less man-hours per flying hour during the first six months after return from PDM to prepare and maintain. Table 4 compares separate tail numbers from Travis and Dover AFBs during a similar time period after return from PDM. The first column are the aircraft the unit worked and the second column are aircraft not worked by Detachment 1.

Table 4
C-5 Man-Hour vs Flying Hour

Det 1 Mission Accomplished			**Det 1 Mission *NOT* Accomplished**		
Tail Number	Flying Hours (6-months)	Avg Man Hour Per Flying Hour	Tail Number	Flying Hours (6-months)	Avg Man Hour Per Flying Hour
860013	336.6	16.5	840059	231.3	23.2
860014	477.6	8.7	840061	382.8	11.2
860015	460.4	6.4	840062	466.1	7.7
860016	329.7	15.5	850001	369.3	11.7
860017	455.4	9.8	850002	287.6	21.5
860018	486.8	9.2	850004	564.4	5.9
860019	339.9	9.9	850006	434.7	10.8
860020	555.9	4.1	850008	415.1	14.3
860021	356.6	22.2	850009	322.6	14.3
Total	3798.9	102.2	Total	3473.9	120.5
Overall Average		***11.4***	**Overall Average**		***13.4***

PDM Oversight

Over the past 3 years the Detachment has gained the respect of many SA-ALC employees. Unit expertise has been called upon numerous times to assist with extraordinary C-5 repairs. This cooperative relationship along with being collocated with the PDM has not only gained the respect of many SA-ALC employees but also resulted in the unit having unofficial oversight of the PDM work being accomplished on AMC aircraft.

This oversight has benefited both the depot and the command. The Detachment has ensured that depot time taken for over-and-above work is realistic and not inflated. This has resulted in reduced annual expenditures by AMC on depot over-and-above work.

Engine Test Cell Initiative

In order to improve the quality of TF-39 engines being returned to the home-stations the Detachment implemented its "engine test cell initiative." This was necessary because, as most people in the logistics business would be surprised to learn, the TF-39 engines do not receive a major inspection as part of the PDM process. Prior to the Detachment's involvement the TF-39 engines were removed from the C-5 aircraft shortly after arrival and then stored for several months until the aircraft was in its final stages of PDM. At this point the engines were "rehung" and operationally checked. If an engine change was necessary, the engine was removed and swapped with another stored engine or a "new" engine from two-level maintenance production. The removal and replacement of the engine is considered over-and-above work and takes four depot personnel approximately 8 hours to complete at a cost of $35,000 (Hodges, 1996: telecon).

In December 1995, the unit began its engine test cell initiative. The Detachment now researches the engine information located in the GO81 database to determine if the engines meet the minimum turbine inlet temperature (TIT) margins of performance. In addition, the unit has coordinated the use of the engine test cell facility at Kelly in order to perform a complete analysis and "trim" on any engine with a TIT margin of 15 degrees or less. If the engine is unable to attain this minimum level of efficiency the Detachment coordinates its replacement.

After less than 10 months of accomplishing this initiative the unit has taken 12 engines to the test cell, three of which failed and were replaced. If not for the unit's efforts these engines would have been rehung on the C-5 and then later had to have been removed and replaced at a total labor cost of $105,000.

TCTO Kitproofing

Practically every C-5 TCTO released by the SA-ALC is "kitproofed" by the Detachment. The unit's convenient location allows the SA-ALC engineering staff to request the unit to perform a kitproof on a TCTO kit before it is released to the field. TCTO kits are evaluated for proper hardware, fit, and clarity of technical data. This cooperative relationship has prevented several potential errors in kit composition, improved the clarity of technical data and ultimately resulted in a complete, well documented TCTO kit being delivered to the operational wings.

Summary

The benefits speak for themselves. The detachment's efforts have resulted in C-5 aircraft being returned to the home-stations, following PDM, in better condition than ever before in history. As a result turn-around times have been reduced by an average of 26 days per aircraft, in-commission rates have increased by 12 percent, man-hour per flying hour rates have decreased by 15 percent, on the wing engine replacements have been reduced by 25 percent, over-and-above costs have been reduced by almost $1 million annually, and complete TCTO kits have been delivered to the field. It's hard to put a dollar figure on all of these benefits but adding up what we know results in a savings to AMC of over $25 million annually.

III. In-House Cost Estimate

The unit is provided with a $1.8 million annual budget. However, this budget alone is not an accurate indicator of the true costs associated with maintaining Detachment 1. There are several reasons for this. First, the cost of manpower--wages and benefits--as well as facilities and utilities are not included in this figure. Furthermore, nearly 75 percent of the budget ($1.2 million) is earmarked for direct aircraft support--primarily aircraft parts. This money would need to be spent regardless of whether the Detachment replaced the parts or the home-station ordered and replaced the parts after the aircraft returned from PDM (London, 1996: 1).

Therefore, in order to more accurately identify the "real" cost of maintaining the AMC Detachment at SA-ALC, the following sections break out the manpower, facility, electrical, communication, tools/equipment, TDY, vehicle maintenance, and miscellaneous expenses.

Manpower Costs

The unit is authorized 74 positions across a broad range of maintenance specialties. Currently the unit has 81 personnel assigned from E-1 to 0-3 (UMPR, 1996: 1). The breakdown is as follows:

Table 5
Unit Manning

GRADE	AUTHORIZED	ASSIGNED
0-3	1	1
E-9	1	1
E-8	0	1
E-7	4	11
E-6	12	18
E-5	20	26
E-4	31	13
E-3	5	3
E-2	0	6
E-1	0	1
TOTAL:	**74**	**81**

Using the MILITARY AF WIDE Standard Composite Rates by Grade the following cost information is compiled (AFI 65-503, 1996, A19-2).

Table 6
Military AF Wide Standard Composite Rates By Grade--FY96$

GRADE	BASE PAY	RETIRED PAY (ACCRUAL)	BAQ & VHA	PCS COSTS	ANNUAL COMPOSITE RATE
0-3	$38,354	$12,618	$6,103	$3,274	***$60,348***
E-9	$37,903	$12,470	$6,457	$1,918	***$58,748***
E-8	$31,156	$10,250	$5,747	$1,918	***$49,071***
E-7	$26,431	$8,696	$5,007	$1,918	***$42,052***
E-6	$22,711	$7,472	$4,368	$1,918	***$36,469***
E-5	$19,015	$6,256	$3,296	$1,918	***$30,485***
E-4	$15,417	$5,072	$2,424	$1,918	***$24,831***
E-3	$12,465	$4,101	$1,591	$1,918	***$20,075***
E-2	$11,698	$3,849	$1,024	$1,918	***$18,489***
E-1	$9,670	$3,181	$586	$1,918	***$15,355***

Now that the cost of individual ranks is known, the unit's annual manpower costs can be determined. As the following table shows, the total annual costs of the currently assigned manpower is approximately $2.6 million annually.

Table 7
Unit Manpower Costs

GRADE	ASSIGNED	PAY & ALLOWANCES	TOTAL ANNUAL COMPOSITE
0-3	1	$60,348	*$60,348*
E-9	1	$58,748	*$58,748*
E-8	1	$49,071	*$49,071*
E-7	11	$42,052	*$462,572*
E-6	18	$36,469	*$656,442*
E-5	26	$30,485	*$792,610*
E-4	13	$24,831	*$322,803*
E-3	3	$20,075	*$60,225*
E-2	6	$18,489	*$110,934*
E-1	1	$15,355	*$15,355*
TOTAL	***81***		***$2,589,109***

Facility Costs

Rent: Currently the unit is occupying approximately 5189 square feet of floor space in the North West corner of the PDM hangar--building 375. The unit's area consists of a combination of 6 modular buildings, and over 3000 square feet of caged area constructed in the open hangar. The unit uses these facilities at no cost to AMC, as part of a prior agreement between the previous center commander, Major General Curtis, and the previous AMC/LG, Major General Smith.

However, the unit's future facility location may change for a couple of reasons. First, a $2.5 million construction project was approved to renovate the majority of building 375. The construction may require the unit to relocate their operations to another area. Second, due to the BRAC's recommendation, the facilities will be turned over to the greater Kelly Development Corporation sometime in the near future. This again, may require the unit to relocate.

Both situations make *accurately* estimating future facility costs difficult at best. However, by using the current mix of office areas and cage/industrial areas, an approximate cost can be determined. The following table provides a breakout of these costs:

Table 8
Estimated Cost to Rent Facilities

TYPE OF AREA	APPROX SQ FEET REQ	MONTHLY CHARGE PER SQ FT	TOTAL COST/SQ FT PER MONTH	TOTAL ANNUAL COST FOR SPACE
Office	2124	$11	$23,364	**$280,368**
Cage/Industrial	3065	$5	$15,325	**$183,900**
TOTAL				***$464,268***

(Average square foot rates provided by the San Antonio Chamber of Commerce)

Electrical Services

Electrical service is also provided at no charge to AMC so, again, these costs are difficult to capture. However, the electrical consumption is primarily confined to basic items such as portable air conditioning/heating units, florescent lighting, computers, and printers in the office areas and florescent lighting in the cage areas. Power is consumed approximately 8 hours per day, 5 days per week. Using the current situation the following table estimates these costs as accurately as possible:

Table 9
Estimated Cost of Power

TYPE OF AREA	APPROX SQ FEET	TOTAL PER MONTH	TOTAL ANNUAL COST FOR POWER
Office	2124	$200	**$2,400**
Cage (lighting only)	3065	$70	**$840**
TOTAL			***$3,240***

Communication Services

Communication services are provided at no charge to AMC. However, the SA-ALC telephone billing office has provided the following figures as estimates of future charges given the current number and type of lines:

Table 10
Estimated Cost of Communications

TYPE OF LINE	NUMBER OF LINES	TOTAL PER MONTH	TOTAL ANNUAL COST FOR COMM
Class "A"	16	$351	**$4,214**
Class "B"	2	$8	**$96**
Extensions	32	$175	**$2,100**
Long Distance		$5	**$60**
*AFNET (GO81)**	1	$0	**$0**
TOTAL			***$6,374***

* NOTE: AFNET for GO81 is funded through higher headquarters--fees are unknown.

Table 11
Total Facility Costs

TYPE OF COST	ANNUAL COST
Rent	**$464,268**
Utilities	**$3,240**
Communications	**$6,374**
TOTAL	***$473,882***

Equipment Costs

These costs include expenditures to purchase new or replacement tools and equipment necessary to accomplish the mission. The total spent in this area for FY96 was $146,781.

TDY

The unit does not experience many TDYs due to the nature of its mission. Expenditures in this area were primarily used to facilitate training at Travis, or provide feedback to the customer. The total spent in this area for FY96 was $22,881.

Vehicle Maintenance

The unit owns and maintains seven vehicles; Two dispatch vans, two pick-up trucks, one stake-bed, and two bob-tails. Fuel and upkeep of these vehicles cost the unit $4,191 for FY96.

Miscellaneous

These costs include expenditures for office furniture, computers, printers, administrative supplies and other items necessary to accomplish the mission. The total spent in this area for FY96 was $65,616. This figure is unusually high due to the purchase of a modular building during FY96.

Summary of Costs

The following table consolidates the costs associated with maintaining the Detachment at SA-ALC. Although, it's only a rough estimate of the "real" costs, it is as close as this author can determine. Even so, the cost is reasonable considering the unit performs intermediate and heavy maintenance on 12-15 C-5s annually.

Table 12
Total Costs (FY96$)

TYPE OF COST	TOTAL ANNUAL COST
Manpower	$2,589,109
Facilities	$473,882
Tools & Equipment	$146,781
TDY	$22,881
Vehicle Maintenance	$4,191
Miscellaneous	$65,616
TOTAL	***$3,302,460***

IV. Contracting Issues

The Government is contemplating a requirements contract for a 5 year period of performance, to be awarded IAW source selection procedures, for the C-5 PDM. This acquisition is open to all interested parties, and will be accomplished as a public/private competition. Work will include accomplishment of analytical condition inspection (ACI), major structures and systems inspections, system tear down, inspection, modification, and/or overhaul of the engine pylons, the horizontal stabilizer, and leading edge slats. The contractor will accomplish aircraft de-paint and paint and operate backshops in conjunction with the PDM. Facilities and equipment are available for lease through the greater Kelly Development Corporation. Small business involvement in the contracted activity is a priority and will be evaluated in the award process. Draft RFP release date is planned for October 1996. Approximate issue date of the formal RFP is January 1997 with contract award planned for July. The approximate issue/response date will be 31 October 1996. According to Major General Childress, "this basically accelerates the timetable for the workload transition, and provides for a more attractive solicitation to potential bidders.

If Detachment 1 is to continue accomplishing its mission in this privatized environment a few very specific areas must be addressed within the RFP and/or contract. First, the RFP should identify the activities and areas that Detachment 1 personnel will be allowed to accomplish their mission. Currently the unit accomplishes its mission on a non-interference basis with the PDM--the PDM having priority. If possible, a similar arrangement should be stated in the RFP.

Clearly one of the most difficult challenges will be to identify the relationship between the contractor and the detachment. This will require identification of all activities the Detachment will be allowed to accomplish as well as the timing of those activities.

Another option is to indicate in the RFP that the unit will be operating in-and-around the aircraft on a non-interference basis and request that the contractor propose how they are planning to incorporate the unit's activities with their own. This method has the advantage of letting the contractor identify what method works best for their situation.

In either case, no matter how well the Detachment's workload is defined there is still the concern of changes and liability. The next sections will discuss each in detail.

Changes

With the exception of terminating contracts, probably the most important action the Government takes regarding its contracts is to make changes in them. Not surprisingly, changes--whether made formally or "constructively"--are the most frequent source of disputes between the Government and the contractor that arise in connection with contract performance.

However, all standard "Changes" clauses provide that changes may be issued by the Contracting Officer. Unlike the general rule in the commercial world that a company may be bound by the acts of agents with "apparent" authority, in Government procurement, the Government may only be bound by the actions of employees with "actual authority." Therefore, whether the government representative who ordered a change had the actual authority to do so is often an issue in changes claims. This places the burden on contractors to make certain that the person ordering the change has actual authority.

On the other hand, the Contracting Officer's authority to make changes is limited by the "Changes" clause to changes that are "within the scope of the contract." Legally, a change outside the scope of the contract is a new procurement that the Contracting Officer is not authorized to order and the contractor is not obligated to perform.

However, much litigation involving changes concerns the authority of Government employees who have not been officially designated as "Contracting Officers" to legally commit the Government to contract changes. Generally, such non-Contracting Officers have only limited authority to represent the Contracting Officer. They do not have the authority to order or authorize changes. However, statements, acts, or inaction by these employees may be deemed "constructive changes" that can nevertheless bind the government. This is what the Detachment must be very careful to avoid.

A "constructive change" is any action or inaction by the Contracting Officer or other Government representative (who has the authority to order changes) that is not a formal change order but has the effect of requiring the contractor to perform additional work beyond the contract's requirements. Although, the Government may believe that the action was proper under the terms of the contract, if the contractor's view that the extra work was not required by the contract ultimately prevails, the action will be construed as a constructive change, and the contractor will be entitled to compensation for the extra costs it incurred.

Therefore, a constructive change could arise if the Detachment increases the contractor's cost of performance by actively interfering with the progress of the work or by failing to cooperate with the contractor. Any request to the contractor from the detachment could be interpreted as a "constructive change" request. If such changes increase the contractor's costs, the

contractor is entitled to a contract price increase. Any interference, or even appearance of interference, could be viewed as delaying the contractor's performance. If justified, the contractor is entitled to an extension of the contract completion date (Arnvas and Ruberry, 1994; 11-2).

Liability

The performance of the C-5 PDM contract will involve Government property. "Government property" is defined in the FAR as "all property owned by or leased to the Government or acquired by the Government under the terms of the contract" (FAR 45.101). It includes both Government Furnished Property (GFP) and contractor-acquired property.

To the extent that this paper is concerned, this property will primarily include C-5 aircraft and the support equipment that will be used jointly by both the contractor and the detachment. As such, important rights and obligations--both for the government and the contractor--come into play.

A contractor under a competitively awarded, fixed-price contract like the C-5 PDM contract, will ordinarily be held liable for loss or damage to GFP while it is in the contractor's possession. Paragraph (g) of the clause set forth in the "*GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS)" CLAUSE* from FAR 52.245-2, expressly provides that the contractor "assumes the risk of, or damage to, Government property" provided under the contract. The liability imposed can be significant, and it applies regardless of the contractor's lack of fault. In practical effect, then, the risk of loss or damage imposed under the clause requires a contractor

receiving GFP under a fixed-price contract to insure the property (Arnvas and Ruberry, 1994; 9-17 to 9-18).

Having the Detachment working in-and-around not only the aircraft, but also the facilities, creates somewhat gray lines of responsibility. For example, who is held liable if Detachment personnel accidentally cause damage to the GFP. Or, in a more complicated situation, who is held liable if a contractor's employee slips on hydraulic fluid he/she claims was spilled by detachment personnel.

According to the FARs, there are some limitations on the risk assumed by the contractor. First, a contractor will not be liable for damage or defects caused by "design deficiencies" for which the Government is responsible; rather, the contractor will be entitled to an equitable adjustment for the increased costs caused by the design deficiencies. Second, if the Government fails to advise a contractor of the peculiarities of the GFP, the contractor will not be liable for damage that occurs to the GFP because of those peculiarities. Third, the standard clause itself provides that a contractor is not responsible for reasonable wear and tear to the GFP, or for property "consumed in performance" of the contract (Arnvas and Ruberry, 1994; 9-18).

Regardless of safegaurds constructive changes and liability issues are inevitable. Limiting the changes and liability will be the on-sight contracting officer's job. However, in order to ensure the "risk-of-loss" is minimized to the government, additional statements should be included to clarify these lines of responsibility and liability. Including phases in the contract that specifically address both the change and liability issue will help to reduce the risk of increased costs, contractor delays, and litigation.

V. Alternatives

The big question still remains; What to do with Detachment 1? On the one hand, the work accomplished by the Detachment has saved AMC over $25 million annually and resulted in AMC C-5 aircraft being returned to Travis and Dover Air Force bases following PDM in better condition than ever before in history. On the other hand, having military personnel working in-and-around an aircraft which is the responsibility of a civilian contractor while using leased facilities and equipment, raises concerns on the contracting side of litigation and liability.

The privatization team at SA-ALC has voiced its concerns about the contracting difficulties however, the primary customer, the AMC/LG, has indicated that he wants the same quality of aircraft delivered to the home stations as is now being delivered with little or no interruption in service or increase in cost.

There is not one right answer that will satisfy both constraints. However, there are two possible alternatives that should be considered. These alternatives are to either leave the unit in-place or close the unit and disperse the assets. This section will address these alternatives and identify the strengths and weaknesses associated with each.

Leave the Unit

Leaving the unit in-place is clearly a viable option. The benefits far exceed the costs and the unit has proven that it can accomplish its mission on a non-interference basis. However, is the Air Force willing to accept the additional risk created by blue-suiters working in-and-around

the contractor. This section will identify the advantages and disadvantages of leaving the unit in-place.

Advantages: Leaving the unit in-place results in a continuation of the benefits outlined in Chapter II. These benefits have saved AMC over $25 million as well as hundreds of man-hours annually. These savings are likely to increase as the airframe ages and the cost of "over-and-above" increases. This option also satisfies the AMC/LG's desire to see no change in quality or increase in cost.

The unit would represent AMC and act as the conduit between Travis and Dover logistics personnel about items that the customer needs to have accomplished. This would help to ensure that AMC received the best product possible. Being on-sight would also allow the unit to provide unofficial oversight of the contractor's work. As a result issues and maintenance problems that are bound to arise could be resolved almost immediately.

Barring any contract limitations, the unit could also be used to assist in the acceleration of the aircraft through PDM to a useable mission capable status in case of a contingency. This assistance would be especially beneficial where more airlift was required than was available.

Finally, the last advantage to leaving the unit in-place is that the unit could act as a buffer to help ease the transition from public to private. No matter how well the transition is planned there is bound to be hiccups in the production during the transition period. Having the unit in-place would provide a pool of experienced personnel to help alleviate any disruptions in production if necessary.

Disadvantages: The biggest disadvantage to leaving the unit in-place is that of increased contractual risk. As mentioned in Chapter III, the risk of constructive change and liability

increase as a result of blue-suiters working in-and-around the privatized environment. This risk could be reduced through the identification of specific unit requirements and coordination. None-the-less there is increased contractual risk associated with leaving the unit in-place.

Once the privatization occurs, conflicts may arise concerning the amount of over-and-above work the unit is accomplishing. This again, could be headed off somewhat by the clear identification of what over-and-above work is the contractor's responsibility and what is the unit's responsibility.

Leaving the unit in-place and intact while civil service workers lose their jobs and have to look for other work may not be perceived as equitable by union employees. This could result in a negative relationship developing between these employees and the Detachment. This negative relationship could lead to a decrease in assistance and backshop support.

Close the Unit

Closing the detachment is also a viable alternative. Under this alternative there are two avenues AMC can take. The first is to pay a contractor to accomplish the work that the Detachment now performs. The second is to revert back to the way it was before the unit was activated with aircraft inspection and discrepancy completion accomplished upon return to home-station following PDM. Each of these options have advantages and disadvantages.

Advantages: Either privatizing the Detachment's mission or moving the mission back to the home-stations would make for a much cleaner contracting environment--less chance of constructive change and liability. The contractor would be solely responsible for the quality of the product delivered to the customer.

If the Detachment's mission were privatized the ANG and AFRES could also pay the contractor to accomplish the work on their aircraft if desired. Taking the unit's "real" costs and dividing it by 12 aircraft per year results in approximately $275,000 per aircraft. If a contractor could complete all the same work that the Detachment accomplishes now for a similar price this would significantly enhance the quality of the aircraft being returned to the ANG and AFRES. As a result these customers would reap the same benefits of reduced turn-around time, man-hour per flying hour, and over-and-above costs. Moreover, the savings would be even greater given the fact that the AFRES and ANG C-5 "A" model aircraft require substantially more over-and-above work and a full 30 days to complete an ISO. Completing the Detachment's mission on all C-5 aircraft moving through PDM would ultimately result in a higher level of fleet readiness.

Another advantage to closing the unit is that it would allow AMC to use Detachment manpower positions to satisfy downsizing requirements levied by HQ USAF. The manpower positions could also be used to shore-up unit manpower needs at Travis and Dover AFBs.

Disadvantages: Closing the Detachment would have several disadvantages. First, the benefits identified in Chapter 2 would no longer be realized. Turn-around times, discrepancies, man-hour per flying hour, and over-and-above costs would more than likely increase back to the levels experienced before the unit's activation. Some of these increases could be avoided through the privatization of the unit's mission however, in a privatized situation a contractor is likely to charge even more than the depot for over-and-above work it performs. As a result these costs would likely escalate over time.

The contractor would probably not perform the unit's mission to the same degree and high standards as the Detachment. It's not an issue of whether or not the contractor can

accomplish the inspections and repairs. It is a question of whether or not AMC is willing to pay the contractor to accomplish the numerous time consuming repairs on minor items that the Detachment now completes. Some examples are the manufacture and installation of insulation blankets for the cargo compartment, removal and replacement of anti-skid, replacement of slat ice-scrapper seals, and repair of sheet-metal or honeycomb panels.

Another disadvantage is that the homestations would need to complete the ISO/OTI/SI inspections, non-workspecification discrepancies, TCTOs, and acceptance inspections. As a result, like before, many of the time consuming minor discrepancies might never get corrected and just be carried forward.

Closing the unit would require the relocation of more than 80 military personnel and their families. Not only would this have a negative effect on the military members and the community but would come on the heals of a 2 percent cut in funding for Permanent Change of Station (PCS) moves recently ordered by the President as part of the 1997 Defense Appropriations Act (Maze, 1996: 4).

Summary of Alternatives

Both alternatives are clearly viable options--both have advantages. Leaving the unit in place results in a continuation of the current benefits and satisfies the AMC/LG's desire to see no change in quality or increase in cost. The unit could also represent AMC and act as the conduit between Travis and Dover about items that need to be accomplished. In addition, the unit could be used during a contingency to accelerate aircraft out of PDM and as a buffer during the transition to privatization.

Closing the unit results in a much cleaner contracting environment and man-power positions that can be used to fill downsizing requirements. If the Detachment's mission were privatized it would also allow the ANG and AFRES to have similar work performed on their aircraft and ultimately result in a higher level of fleet readiness overall.

VI. Summary and Recommendation

Summary

The privatization of the C-5 PDM workload has created the need to make a decision concerning the continued existence of AMC's aircraft maintenance detachment stationed at SA-ALC. In order to fully understand the situation, this paper has summarized the benefits of the unit's accomplishments to date, identified the "real" costs associated with maintaining the unit, addressed some of the key contracting concerns and proposed two alternatives to help answer this question of what to do with Detachment 1, 60th Logistics Group.

The question now is which of these two alternatives is the best for AMC. As stated earlier both alternatives are viable options. Leaving the unit in place results in a continuation of the current benefits and satisfies the AMC/LG's desire to see no change in quality or increase in cost. The unit could also represent AMC and act as the conduit between Travis and Dover about items that need to be accomplished. In addition, the unit could be used during a contingency to accelerate aircraft out of PDM and as a buffer during the transition to privatization.

Closing the unit results in a much cleaner contracting environment and man-power positions that can be used to fill downsizing requirements. If the Detachment's mission were privatized it would also allow the ANG and AFRES to have similar work performed on their aircraft and ultimately result in a higher level of fleet readiness overall.

Recommendation

The answer, in this author's opinion, is to leave the unit in place. The benefits that result from the unit accomplishing its mission at SA-ALC far exceed its cost and increased contracting risk. Privatizing the Detachment workload would result in some of these benefits being maintained however, the money spent to accomplish the mission, as well as the increase in over-and-above costs would result in a substantial increase in costs and probable decrease in quality for AMC.

If AMC leaves the unit in place several issues would need to be resolved in order to facilitate little or no change in unit production. One of these areas is support equipment. Currently the support equipment is government owned and contractor maintained. Use of the equipment is based on a priority system with the PDM having priority over the Detachment. This system has worked fairly well over the last couple of years. However, in a privatized environment profits will dictate greater pressure for efficiency and as a result may lead to a shortage of critical support equipment. This is particularly true for special purpose vehicles such as the high reach (cherry-pickers). As a result, some prior approval or quota system may need to be identified in the contract to ensure availability.

In addition, due to the facilities no longer being government owned, the detachment will be at the mercy of the contractor for required office and floor space. This could lead to the unit having to move to a less convenient and possibly smaller area. In order to reduce the chance of this occurring the unit's facility requirements (both office and cage areas) should be included in the contract. Backshop support is another area which will require specific procedures on use and payment of labor and/or materials.

Finally, in order to reduce the chance of constructive change and litagation occurring, a contracting officer from AMC should review that portion of the contract which covers the interrelationship between the PDM contractor and the Detachment to ensure that it addresses issues of responsibility, coordination, change, support equipment, and facilities. In addition, a contracting officer should brief the Detachment personnel, just prior to the PDM contract start date, to ensure all personnel understand what they can and cannot request as well as what legal procedures to follow in the event of an accident.

If the unit is left in place a review of the situation should be reaccomplished after the privatized PDM contract has been active for approximately 6 months. The review should focus on any changes, delays, or litigation caused by the Detachment. This will ensure any changes in the situation or the privatization environment are adapted to as soon as practical.

Together these items should reduce the risk associated with blue-suiters working in-and-around a contractor owned aircraft in a non-DoD facility, on a non-interference basis. More importantly, leaving the Detachment in place results in the same quality of aircraft being delivered to the home-stations and a savings to AMC of over $25 million annually.

Appendix: List of Acronyms

BRAC	Base Realignment and Closure Commission
SA-ALC	San Antonio Air Logistics Center
AMC	Air Mobility Command
PDM	Programmed Depot Maintenance
DoD	Department of Defense
ACI	Analytical Condition Inspection
RFP	Request For Proposal
ISO	Isochronal
OTI	One Time Inspections
SI	Special Inspections
MC	Mission Capable
UTE	Utilization rate
FMC	Fully Mission Capable
PMCM	Partially Mission Capable Maintenance
PMCS	Partially Mission Capable Supply
PMCB	Partially Mission Capable Both
VIRP	Variable Information Retrieval Program
DLR	Depot Level Repairables
IAW	In Accordance With
GFP	Government Furnished Property

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Vita

Major James L. Hannon was born on 3 September 1957 in Victorville, California. After graduating from Mascutah High School in June 1976, he completed basic military training at Lackland AFB and received technical training at Chanute AFB as an aircraft maintenance specialist. He was then assigned to Kincheloe AFB until its closure in 1977. In August 1977, he was assigned to Castle AFB as a B-52 maintenance crew member. Major Hannon was then accepted for cross training into the Flight Engineer career field in December 1979 and subsequently assigned to Little Rock AFB. While at Little Rock, he earned his Associate's degree in Aircraft Maintenance from the Community College of the Air Force and Bachelor of Science Degree in Industrial Technology from Southern Illinois University.

On completion of Officer Training School in 1985, Major Hannon began his training as a maintenance officer at Chanute AFB. He was then assigned to Yokota AB in September 1985. In October 1988, he was assigned to Headquarters Military Airlift Command as a Logistics Readiness Center controller, later as the Chief, C-130 Systems Maintenance Section, and assistant executive officer to the HQ AMC/LG. In October 1992, he was reassigned to the SA-ALC as Chief, Command Support Management Branch and later Commander, Detachment 1, 615th Air Mobility Operations Group. In September 1995, he entered the School of Logistics and Acquisition Management, Air Force Institute of Technology as part of the Advanced Study of Air Mobility (ASAM) program.

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13. ABSTRACT ***(Maximum 200 Words)***

As a result of the recent Defense Base Realignment and Closure Commission recommendation to close the San Antonio Air Logistics Center, and subsequent Presidential decision to privatize the C-5 depot maintenance operation there, the question of what to do with Air Mobility Command's (AMC) largest aircraft maintenance detachment, stationed at SA-ALC, remains unanswered.

This is not an easy decision. On the one hand, the work accomplished by the Detachment has saved AMC over $25 million annually and resulted in AMC C-5 aircraft being returned to Travis and Dover Air Force bases following PDM in better condition than ever before in history. On the other hand, having military personnel working in-and-around an aircraft which is the responsibility of a civilian contractor while using leased facilities and equipment, raises contracting concerns.

The privatization team at SA-ALC has voiced its concerns about the contracting difficulties however, the primary customer, the AMC/LG, has indicated that he wants the same quality of aircraft delivered to the home stations as is now being delivered with little or no interruption in service or increase in cost.

This paper summarizes the benefits of the unit's accomplishments to date, identifies the "real" costs associated with those benefits, and addresses some of the key contracting concerns such as "constructive change" and liability. The paper also proposes two alternatives--leave the unit in place or close the unit--and a recommendation to help answer the question; what should AMC do with Detachment 1 at the San Antonio Air Logistics Center?

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